REMARKS

As a preliminary matter, Applicants thank the Examiner for the courtesy shown to Applicants' representative, Josh C. Snider, in the telephone interview conducted September 22, 2003, between Mr. Snider and the Examiner, Mike Qi. Claims 1 and 6 were discussed, with specific attention to claim 1. The prior art discussed was Applicants' Admitted Prior Art ("the AAPA") and Lien (U.S. 5,907,380). Agreement was not reached with respect to the claims. A summary of the interview is as follows.

In the interview, the Examiner acknowledged that claim 1 does recite two different projections formed on two different electrodes, but maintained that the rejection is still appropriate because a projection formed on the common electrode, as the first electrode, is equivalent to a projection formed on the pixel electrode, as the second electrode. Applicants pointed out to the Examiner that the AAPA shows no projections on the electrodes, and Lien shows a projection formed on the pixel electrode only. Without acknowledging that the common electrode and the pixel electrode are equivalent to the first and second electrodes of the present invention, Applicants further pointed out that none of the three cited references of record show any separate projections formed on the common and pixel electrodes respectively, with a space defined therebetween, as recited in claim 1 of the present invention.

The Examiner countered that Lee et al. (U.S. 6,177,973) shows an equivalence of projections on the common and pixel electrodes. Applicants responded to this assertion

with: (1) Lee has not been cited against the present invention in any rejection of record; (2) the filing date of Lee is after the earliest priority date of the present Application; and (3) Lee does not show or even suggest any projections on the common and pixel electrodes. Lee shows only the electrodes themselves protruding somewhat from the substrate surface, but not that any projections are formed on the electrodes, as featured in the present invention. The inventive concept, therefore, is different.

Applicants agreed to file the arguments presented in the interview in a formal response (this paper). The Examiner agreed to then reconsider his position once the formal response was filed. Agreement was only reached with respect to the fact that, should the Examiner wish to cite Lee as a new basis for rejection, such rejection would be a new ground, and would have to be filed as a further, non-final Office Action.

As a second preliminary matter therefore, Applicants respectfully traverse the outstanding Office Action (Paper No. 21) as being non-responsive. Section 707.07(f) of the MPEP places a burden on the Examiner when repeating a previous rejection, to take note of all of Applicants' arguments traversing the previous rejection, and answer the substance of those arguments. In the present case, the Examiner has not done so. As discussed below, the Examiner has not examined all of the claim language of the claim themselves, nor has the Examiner responded to several of the many meritorious arguments presented in the previous four Amendments, all of which are incorporated by reference herein.

Claim 1 again stands rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Walton et al. (U.S. 6,201,588) and Lien. Applicants respectfully traverse this rejection for the reasons of record. The Examiner has not answered all of the meritorious arguments presented by Applicants in the previous Amendments traversing this rejection. Those arguments are therefore incorporated by reference herein, and Applicants further traverse as follows.

The Examiner asserts on Page 10 of Paper No. 21 that two different projections being formed on two different respective electrodes are not recited in the claims. As acknowledged by the Examiner in the September 22, 2003 telephone interview, this assertion is not correct. Claim 1 of the present invention specifically recites, among other things, "a first projection provided on said first electrode and a second projection provided on said second electrode." In other words, claim 1 here recites, and contrary to Paper No. 21, two different projections provided on two different respective electrodes. These features are not taught or suggested by any of the cited prior art references alone or in combination. Nor are these features additionally taught or suggested as being formed outside of the pixel display area, and with a separation therebetween as part of the pixel, as also featured in the present invention. Accordingly, for at least these reasons, the section 103 rejection is once again respectfully traversed. The outstanding Office Action should be vacated, or the rejection withdrawn.

Applicants further respectfully request that the Examiner examine all of the actual claim language of the claims themselves, and not only the several features found in common with the prior art only. In this regard, Applicants submit that the citation of the Walton reference is in appropriate. Applicants do not dispute that it is well known to provide a rubbed alignment layer to control the alignment and pre-tilt of liquid crystal molecules. Claim 1 of the present invention, however, actually recites that it is the first and second projections which induce the pre-tilt angle of the liquid crystal molecules located adjacent to the projections, and not the rubbing process. Walton neither teaches nor suggests any such projections which can induce the pre-tilt themselves.

Section 2143.03 of the MPEP requires that, to maintain a *prima facie* case of obviousness based on a combination of references, all features and elements of the present invention must be shown or suggested within the prior art. In this case, this requirement has not been satisfied. It is not enough merely to show a prior art reference which teaches a pre-tilt of liquid crystal molecules. For the present obviousness rejection, the Examiner is required to show a prior art reference which teaches projections which induce pre-tilt, or the rejection must be withdrawn as incomplete.

Moreover, Lien is also an inappropriate reference to include in an obviousness rejection against the present invention. The present invention specifically features two different projections formed on two separate respective electrodes, and that the electrodes are

both of an opaque metal and provided outside a display area of the pixel. Not only does Lien fail to teach or suggest such features, Lien even teaches away from such a configuration.

The Examiner asserts that the electrode wall 62 of Lien is analogous to the first projection of the present invention, and that the pixel electrode 26 of Lien is analogous to the first electrode of the present invention. The Examiner then asserts that a second projection of Lien is formed on the second, common electrode, although the Examiner does not cite to anywhere within the Lien reference itself where such a second projection on the common electrode maybe found. Even though Applicants do not agree that the Examiner's analogy is correct, for the purposes of this discussion only, even if it were correct, it still fails to teach or suggest the present invention.

First, in every embodiment described by Lien, the projections 62 are shown to be within the display area of the pixel area 26. In contrast, claim 1 specifically features that the electrodes on which the projection are formed are provided outside the pixel display area. For at least these reasons, Lien specifically teaches away from the present invention, and therefore cannot form a basis for the obviousness rejection.

Second, the Examiner has asserted that the pixel electrode 26 of Lien is analogous to the first electrode of the present invention. The pixel electrode 26 of Lien cannot be analogous the first electrode of the present invention though, because it is not shown to be formed outside of the display area. Accordingly, the device of Lien could not teach or suggest all of the recited features of the present invention, and the Examiner's

analogy is therefore insufficient. For at least these reasons as well, the Section 103 rejection of claim 1 is even further traversed.

Additionally, the Examiner has not responded to any of Applicant's arguments pointing out that the present invention is directed toward a device exhibiting negative dielectric anisotropy, whereas several of the references cited by the Examiner specifically teach twisted nematic devices which exhibit positive dielectric anisotropy. Those skilled in the art are well aware that such different devices do not function in the same manner, nor do they exhibit the same behavioral characteristics. Applicants acknowledge, however, that page 4 of Response C mistakenly referenced the present (vertical alignment) invention as exhibiting "positive" dielectric anisotropy. Such was a typographical error, and should have read "negative dielectric anisotropy."

Claim 4 again stands rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Rieger et al. (U.S. 6,180,026). Applicants once again traverse this rejection for the reasons of record and respectfully request that the Examiner either answer the arguments traversing the rejection, or withdraw the rejection all together.

As previously and repeatedly discussed, Rieger is specifically drawn to a twisted nematic device. One skilled in the art is well aware that such devices align the liquid crystal molecules between the substrates perpendicularly to the plane of the substrates in an activated state. Claim 4 of the present invention, on the other hand, specifically recites, among other things, that the liquid crystal molecules align in a generally parallel direction to

the plane of the substrates. In other words, the present invention is directed towards the vertical alignment mode device. As discussed above, vertical alignment devices do not behave or function identically to twisted nematic devices, and those skilled in the art are well apprised that the two are not simply interchangeable. In the present case, the Examiner has not made a showing for how two such different devices maybe combined.

As previously discussed (page 4 of Response C), for a rejection based on a combination of references, it is not enough for the Examiner merely to find the different features of the invention within the prior art. The Examiner is also required to show a teaching or suggestion for the combination of the references. In the present case, no such teaching or suggestion for the proposed combination has been shown. This lack of teaching for the combination is particularly significant given the incompatibility of vertical alignment devices and twisted nematic devices in several ways.

As previously discussed, Rieger teaches only the use of nematic liquid crystal devices (col. 2, lines 49-59; col. 3, lines 27-28; col. 4, lines 28-29) having positive dielectric anisotropy (col. 3, lines 28-29; col. 4, lines 30-31), and nowhere teaches or suggests a vertical alignment liquid crystal having negative dielectric anisotropy. Because such features are included in claim 4 of the present invention, Rieger could only be appropriately considered to teach away from the present invention. Without some specific showing by the Examiner of how the specific and different chemical formulations taught by Rieger could be

applied to the present invention, Rieger could not properly form the basis for an obviousness combination against the present invention, and the rejection should therefore be withdrawn.

Claim 5 again stands rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA and Rieger, and further in view of Weber (U.S. 5,374,374). Applicants respectfully traverse this rejection for the reasons of record and as discussed above. Claim 5 depends from independent claim 4 and therefore includes all the features of the base claim, plus additional features.

Claim 6 again stands rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Walton, Lien, and the Yoshida reference. Applicants again respectfully traverse this rejection for the reasons of record, and further request that the Examiner answer all of the arguments traversing the rejection, provided in this, and the previous four, responses.

Walton and Lien both fail to teach or suggest the present invention, as fully described above, and in the previous four responses. Similar to the discussion above, neither reference even suggests two different regions in a molecular alignment film corresponding to two different respective electrodes, and where such electrodes are provided outside of the display area of the pixel. In this respect, the arguments presented above with respect to the recited projections of claim 1 are herein repeated with respect to the recited regions of claim 6. Lien specifically teaches away from providing any such region outside of the display area. Each and every electrode wall disclosed by Lien is form within the pixel display area.

Walton, on the other hand, features no specific projections or regions, but only that pre-tilt may be had according to a general rubbing direction of an alignment film. Those skilled in the art are well aware that the rubbing process does not form any specific projections or regions in an alignment film, but only a general alignment direction across the entire surface of the substrate. Accordingly, the rubbing process taught by Walton is not relevant to the present invention.

The Examiner has cited Yoshida merely for teaching that regions in a molecular alignment film maybe formed by ultraviolet radiation as a substitute only for the electrode walls taught by Lien, or the rubbing process taught by Walton. But, as discussed above, even if this proposed substitute by the Examiner were correct, it still would not make up for the deficiencies noted in both the Lien and the Walton references. Moreover, the Examiner has not responded to any of the arguments presented in Response C specifically directed towards traversing the inclusion of the Yoshida reference in the Examiner's proposed combination. Applicants once again respectfully request that the Examiner answer these arguments, or withdraw the rejection.

Furthermore, Applicants specifically note that the Examiner neglected to refer to any of the arguments traversing the Yoshida reference, when characterizing a few of Applicants arguments as the "only arguments" presented (page 8 of Paper No. 21). As also discussed above, there have been several other arguments presented by Applicants which

have yet to be answered by the Examiner. For at least these additional reasons, Applicants again traverse the rejection of claim 6.

For all of the foregoing reasons, Applicants submit that this Application, including claims 1 and 4-6, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned Attorney if an interview would expedite prosecution.

Respectfully submitted,

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